

### **REMARKS**

Claim 41 is amended. Claims 41-43 are pending in the application.

Claims 41-43 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Holloway (U.S. Patent No. 6040249). The Examiner is reminded by direction to MPEP § 2131 that anticipation requires each and every element of a claim to be disclosed in a single prior art reference. Claims 41-43 are not anticipated by Holloway for at least the reason that Holloway fails to teach each and every element of any of those claims.

Independent claim 41 is amended to replace text deleted inadvertently by amendment, and to improve readability. The present amendment is not intended to modify the scope of the claim. As amended, independent claim 1 recites a gate oxide layer comprising silicon dioxide and having a total thickness of 5 Angstroms having a nitrogen-enriched region that is only in an upper half of the gate oxide layer. The Examiner contends that Holloway teaches a gate oxide layer comprising silicon dioxide and having a thickness of about 5Å, relying upon the Holloway disclosure at column 1, lines 50-55, and column 2, lines 1-20. The Examiner acknowledges that Holloway does not explicitly teach a gate oxide layer of 5Å, but indicates that Holloway teaches that gate oxides can be less than 10Å, which includes 5Å (present Action at page 4, paragraphs 1 and 4). Applicant disagrees with the Examiner's assertions and requests reconsideration.

In order to rely on a reference for a particular teaching, the specific subject matter relied upon must be enabled by the reference. In this instance the Examiner relies upon Holloway's indication that gate oxides can be less than 10nm to support reliance of teaching a gate oxide layer of 5Å having nitrogen confined to the upper half. First applicant notes that Holloway does not set a lower end point on the range of layer thickness. The

examiner cannot arbitrarily set such endpoint. Second, Holloway does not enable all gate oxide thicknesses less than 10nm. The smallest value enabled by Holloway for gate oxide layer thickness is 4nm (col. 2, ll. 16-20). This value is 8 fold higher than the claim 41 recited gate oxide thickness of 5Å. Accordingly, Holloway cannot be relied upon as enabling all thickness values less than 10nm, or the recited 5Å value.

Furthermore, Holloway specifically indicates keeping nitrogen at least 3Å away from the lower edge of the gate oxide (col. 2, ll.13-15). This specifically teaches away from the claim 41 recited layer having nitrogen 2.5Å from the lower edge of the layer.

Holloway does not enable a 5Å layer with nitrogen confined to an upper 2.5Å. Therefore, Holloway cannot be relied upon as teaching this claim 41 recited feature. Holloway teaches away from having nitrogen 2.5Å from the lower edge of the layer. Accordingly, claim 41 is not anticipated by Holloway.

Dependent claims 42 and 43 are not anticipated by Holloway for at least the reason that they depend from allowable base claim 41.

Claims 41-43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Holloway. A proper obvious rejection requires there to be a reasonable expectation of success; and the combined references must teach or suggest all of the claim limitations. These factors must be shown, the burden of which is upon the Examiner, in order to establish a *prima facie* case. As discussed above, Holloway does not teach the claim 41 recited gate oxide layer comprising silicon dioxide and having a total thickness of 5Å, having a nitrogen-enriched region that is only in an upper half of the gate oxide layer. Due to lack of enablement, and teaching away, Holloway cannot be relied upon as suggesting this recited feature. Additionally, Holloway's lack of enablement fails to provide a

reasonable expectation of achieving the claim 41 recited 5Å gate oxide layer, or the 5Å gate oxide having nitrogen confined to the upper 2.5Å. Accordingly, a prima facie case of obviousness has not been established with respect to claim 41.

Dependent claims 42 and 43 are allowable over Holloway for at least the reason that they depend from allowable base claim 41.

For the reasons discussed above, claims 41-43 are allowable. Accordingly, applicant requests formal allowance of such claims in the Examiner's next action.

Respectfully submitted,

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